

CHANGE OVER TIME & CLASSIFICATION



EDITABLE student notebook pages - digital links included for students to complete guided notes on Google Drive

Question: Where did Darwin travel to where he observed many unusual organisms?

DARWIN'S THEORY OF EVOLUTION

Evolution – the process of change over time

In Darwin's travels aboard the HMS Beagle, which began in 1831, Charles Darwin made three important observations:

- The world includes a tremendous diversity of living things throughout a wide range of habitats
- Animal species, like those in the Galapagos Islands, that are related can have different characteristics or occupy different habitats in the same area
- Fossils – preserved remains of ancient organisms, resembled

Darwin's observations led him to develop the scientific theory of evolution, which explains how modern organisms evolved over long periods of time by natural selection.

Adaptation – a trait that helps an organism survive and reproduce.

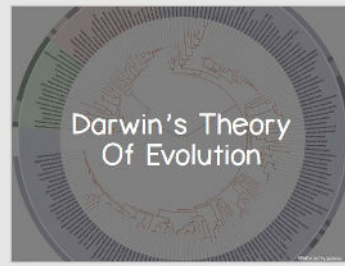
Natural selection – process by which individuals that are better adapted to their environment are more likely to survive and reproduce.

Factors that affect process of natural selection:

- Overproduction – species produce more offspring than can survive (insects, fish)
- Variations – difference between individuals of the same species
- Competition – resources are limited



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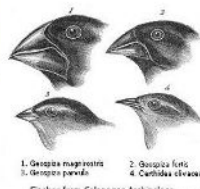


Natural selection

- process by which individuals that are better adapted to their environment are more likely to survive and reproduce.

Evolution

The process of change over time



1. *Geospiza magnirostris*
2. *Geospiza parvula*
3. *Geospiza fortis*
4. *Carduelis citreolinea*

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Factors that affect process of natural selection

- Overproduction: species produce more offspring than can survive (insects, fish)
- Variations: differences between individuals
- Competition: resources are limited, species must compete to survive

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Evolution Of Populations

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The Hardy—Weinberg principle holds under these five conditions:



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Reproductive isolation

When two populations no longer interbreed, can cause evolution of two separate species. This can be caused by behavioral isolation, geographic isolation and temporal isolation.



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EDITABLE PowerPoint presentations include high-resolution graphics and feature all topics and vocabulary covered in the notes

Name _____ Date _____

CHAPTER TEST: Change Over Time

Multiple Choice

Choose the answer that best completes each statement.

1. A species is a group of similar organisms that _____.
 - a. can mate with each other and produce fertile offspring
 - b. can live together on an island
 - c. can migrate to an island from the mainland
 - d. all have exactly the same traits
2. What are fossils?
 - a. models and casts of organisms that live today
 - b. drawings of organisms
 - c. Footprints or impressions
 - d. the preserved remains or impressions of organisms that lived long ago
3. How do most fossils form?
 - a. An insect becomes trapped in a tree
 - b. An entire organism is buried in sediment
 - c. A dead organism is buried in sediment
 - d. A dead organism is buried in sediment
4. Which term refers to the process of an organism's body becoming fossilized?
 - a. mold
 - b. fossilization
 - c. cast
 - d. petrification
5. What did Darwin's theory of evolution explain?
 - a. How organisms change over time
 - b. How organisms are related
 - c. How organisms adapt to their environment
 - d. How organisms change over time
6. A trait that helps an organism survive and reproduce is called _____.
 - a. mutation
 - b. selection
 - c. adaptation
 - d. variation
7. Which term refers to the process of an organism's body becoming fossilized?
 - a. natural selection
 - b. overproduction
 - c. competition
 - d. variation

16. An organism's scientific name consists of _____.
 - a. its class name and its family name
 - b. its kingdom name and its phylum name
 - c. its genus name and its species name
 - d. its phylum name and its species name
17. The more classification levels that two organisms share, _____.
 - a. the closer together on Earth they live
 - b. the easier it is to tell them apart
 - c. the more characteristics they have in common
 - d. the more distantly related they are
18. One characteristic used to place organisms into kingdoms is _____.
 - a. how they move
 - b. where they live
 - c. their ability to make food
 - d. their ability to reproduce
19. Which group of organisms includes _____.
 - a. protists
 - b. bacteria
 - c. plants
 - d. animals
20. Which kingdoms include _____.
 - a. Fungi and plants
 - b. Fungi and protists
 - c. protists and animals
 - d. protists and plants

Complete each statement with the correct word or phrase.

21. Gradual change in a species over time is called _____.
 - a. natural selection
 - b. adaptation
 - c. variation
 - d. evolution
22. An empty space called sedimentary deposits is called _____.
 - a. fossil
 - b. mold
 - c. cast
 - d. petrification
23. The largest span of time is called _____.
 - a. geologic time
 - b. geologic time scale
 - c. geologic time scale
 - d. geologic time scale
24. Mammals, birds, and reptiles are all _____.
 - a. vertebrates
 - b. invertebrates
 - c. prokaryotes
 - d. eukaryotes
25. Archaea and Bacteria are _____.
 - a. prokaryotes
 - b. eukaryotes
 - c. protists
 - d. fungi
26. In the process of natural selection, the individuals that survive and reproduce are those that have the most _____.
 - a. adaptations
 - b. variations
 - c. mutations
 - d. fossils

EDITABLE Chapter test includes multiple choice, fill in the blank, interpreting diagrams, & short Answers questions

27. The _____ of a radioactive element is the time it takes for half of the atoms in a sample to decay.
28. A structural adaptation enabling an organism to blend in with its environment is _____.
29. The first word in an organism's scientific name is its _____.

Interpreting Diagrams

Use the diagram to answer each question.

Organism	House cat	Red Fox	Dog	Wolf	Gopher	Platypus
Kingdom	Animalia	Animalia	Animalia	Animalia	Animalia	Animalia
Phylum	Chordata	Chordata	Chordata	Chordata	Chordata	Amphibia
Class	Mammalia	Mammalia	Mammalia	Mammalia	Mammalia	Monotremata
Order	Carnivora	Carnivora	Carnivora	Carnivora	Rodentia	Monotremata
Family	Felidae	Canidae	Canidae	Canidae	Geomyidae	Monotremata
Genus	Felis	Canis	Canis	Canis	Thomomys	Monotremata
Species	F. domesticus	C. latrans	C. familiaris	C. lupus	T. talpae	M. platypus

30. Using the table above, how is a dog more closely related to a red fox than a house cat?
31. At what level does the relationship between gophers and house cats diverge?
32. Which two animals are most closely related? Explain.

Answer key included – Images are blurred for copyright reasons



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